WHAT IS CLAIMED IS:

1. An electrode for an electrochemical cell which comprises a cathode containing a proton-conducting compound as an electrode active material, an anode containing a proton-conducting compound as an electrode active material and an electrolyte containing a proton source, comprising a proton-conducting compound and an anion-exchange resin.

2. The electrode for an electrochemical cell as claimed in Claim 1, wherein the proton-conducting compound is a compound capable of storing electrochemical energy by a redox reaction with ions of the electrolyte.

3. The electrode for an electrochemical cell as claimed in Claim 1, wherein the anion-exchange resin is a fiber.

4. The electrode for an electrochemical cell as claimed in Claim 1, wherein the anion-exchange resin is a fiber with a length of 10 mm or less and a major axis of 100 μm or less.

5. The electrode for an electrochemical cell as claimed in Claim 1, wherein the anion-exchange resin is a fiber made of polyvinyl alcohol having an anion-exchanging

group.

6. The electrode for an electrochemical cell as claimed in Claim 1, comprising the anion-exchange resin in 0.01 to 60 wt% to the electrode active material.

7. The electrode for an electrochemical cell as claimed in Claim 1, wherein the electrolyte is an electrolytic solution containing a proton-ionizing electrolyte.

8. The electrode for an electrochemical cell as claimed in Claim 1, wherein the anion-exchange resin is homogeneously dispersed in the electrode.

9. The electrode for an electrochemical cell as claimed in Claim 1, wherein the anion-exchange resin is contained only in the surface layer of the electrode.

10. An electrochemical cell which comprises a cathode containing a proton-conducting compound as an electrode active material, an anode containing a proton-conducting compound as an electrode active material and an electrolyte containing a proton source, wherein at least one of the cathode and the anode is the electrode as claimed in Claim 1.

11. An electrochemical cell which comprises a cathode

containing a proton-conducting compound as an electrode active material, an anode containing a proton-conducting compound as an electrode active material and an electrolyte containing a proton source, wherein the cathode is the electrode as claimed in Claim 1.

12. The electrochemical cell as claimed in Claim 10, wherein the electrochemical cell is operable such that as a charge carrier, protons are exclusively involved in a redox reaction of the active materials associated with charge/discharge in both electrodes.

13. The electrochemical cell as claimed in Claim 10, wherein the electrolyte is an acid-containing aqueous solution.

14. A storage device comprising an electrochemical cell which comprises a cathode containing a proton-conducting compound as an electrode active material, an anode containing a proton-conducting compound as an electrode active material and an electrolyte containing a proton source,

wherein at least one of the electrodes in the electrochemical cell is the electrode as claimed in Claim 1, and

wherein a plurality of the electrochemical cells are electrically connected.

15. A storage device comprising an electrochemical cell which comprises a cathode containing a proton-conducting compound as an electrode active material, an anode containing a proton-conducting compound as an electrode active material and an electrolyte containing a proton source,

wherein the cathode in the electrochemical cell is the electrode as claimed in Claim 1, and

wherein a plurality of the electrochemical cells are electrically connected.

16. The storage device as claimed in Claim 14, wherein the electrochemical cells are connected in series.

17. The storage device as claimed in Claim 16, wherein the electrochemical cells are stacked.

18. The storage device as claimed in Claim 14, wherein the electrochemical cell is operable such that as a charge carrier, protons are exclusively involved in a redox reaction of the active materials associated with charge/discharge in both electrodes.

19. The storage device as claimed in Claim 14, wherein the electrolyte in the electrochemical cell is an acid-containing aqueous solution.